Arch Public Health
2009, 67 (Supplement 1), 17

Genetic markers of obesity and its metabolic complications in adolescents

by

Bokor S[1,2], Meirhaeghe A[1,2], Fievet N[1,2], Goumidi L[1,2],
Dallongeville J[1,2], the HELENA Study Group

Objectives: The aim of the lecture is to present some associations between genetic markers and obesity and metabolic disorder phenotypes in the HELENA cross sectional study (CSS).

Subjects and methods: 1172 healthy adolescents, aged 12-17.5 years from 10 centres in 9 European countries participated in the genetic part of the HELENA-CSS. Precise, harmonised data are available for dietary behaviour, food choices & preferences, socio-economic status, physical activity and fitness, clinical status and numerous biochemical parameters. Gene selection was based on a candidate gene approach. Single nucleotide polymorphisms (SNPs) were selected according to HapMap, NCBI and literature data. Genotyping was performed on Illumina GoldenGate platforms. Additional SNPs were genotyped using VeraCode technology on a BeadXpress Reader System. Among the 97 candidate genes chosen, we will present the analyses of the associations between polymorphisms of the *CD36* and *MTHFR* genes and excess body fat in the HELENA-CSS and obesity risk in a case-control study on obesity in adolescents.

Results: For the CD36 gene, 4 SNPs were consistently associated with a higher risk of obesity in the case-control study and with excess body fat in the HELENA-CSS, defining a haplotype that was strongly associated with the risk of obesity. In contrast, there was no evidence for any consistent association between MTHFR SNPs and obesity.

Conclusions: These results provide examples of the association between genetic markers in candidate genes and the risk of obesity in European adolescents.

[1] Institut Pasteur de Lille, Lille
[2] INSERM, U744, Université de Lille 2, Lille, France
jean.dallongeville@pasteur-lille.fr